

NATURAL PRODUCT-BASED ANTI-CANCER AGENTS: AZA-ENGLERIN ANALOGUES

SUMMARY

Chemotherapy resistance in a wide array of cancers is often associated with enhanced glucose uptake and dysregulation of the insulin signaling pathway. Therapeutics capable of inhibiting insulin signaling would be valuable as a stand-alone treatment and for sensitizing resistant tumors to standard chemotherapy regimens. The National Cancer Institute seeks partners interested in licensing or collaborative research to co-develop a treatment for Ewing's Sarcoma, with a goal of preclinical evaluation leading to clinical testing.

REFERENCE NUMBER

E-090-2014

PRODUCT TYPE

- Therapeutics

KEYWORDS

- Ewing
- sarcoma
- glycolytic
- insulin
- resistance

COLLABORATION OPPORTUNITY

This invention is available for licensing and co-development.

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DESCRIPTION OF TECHNOLOGY

Chemotherapy resistance in a wide array of cancers is often associated with enhanced glucose uptake and dysregulation of the insulin signaling pathway. Therapeutics capable of inhibiting insulin signaling would be valuable as a stand-alone treatment and for sensitizing resistant tumors to standard chemotherapy regimens. Researchers at NCI's [Genitourinary Malignancies Branch](#) have synthesized and developed a series of Englerin-A analogues with potent anti-tumor activity that is linked to inhibition of the insulin pathway.

The researchers have previously shown that Englerin A has potent activity *in vivo* using a renal carcinoma xenograft mouse model. A new lead compound with specific activity against renal cell carcinoma, which can be synthesized to scale for *in vivo* studies, and improved oral bioavailability, has been identified. The NCI seeks partners interested in collaborative research to co-develop this therapeutic with an initial goal of preclinical evaluation leading to clinical testing.

POTENTIAL COMMERCIAL APPLICATIONS

- Chemotherapeutic for renal cell carcinoma, in addition to glucose dependent tumors.
- Treatment of diseases or conditions associated with insulin resistance

COMPETITIVE ADVANTAGES

- Novel compounds with potent and selective inhibitory effect on select cancer cells
- Parent compounds are effective in *in vivo* cancer models.
- Demonstrated bioavailability after oral administration (mouse model)

INVENTOR(S)

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DEVELOPMENT STAGE

- Pre-clinical (in vivo)

PUBLICATIONS

Ratnayake R, et al. [PMID [19061394](#)]; Li Z, et al. [PMID [21476574](#)]; Akee R, et al. [PMID [22280462](#)]; Sourbier C, et al. [PMID [23352416](#)]

PATENT STATUS

- **U.S. Filed:** US Provisional Patent Applications 61/936,285 filed February 5, 2014 and No. 62/018,381 filed June 27, 2014

RELATED TECHNOLOGIES

- [E-064-2008 - Cancer Inhibitors Isolated from an African Plant](#)
- [E-042-2012 - Diabetes, Obesity, and Other Insulin-Related Diseases](#)
- [E-201-2012 - Plant-derived Compounds for the Treatment of Retroviral Diseases](#)

THERAPEUTIC AREA

- Cancer/Neoplasm